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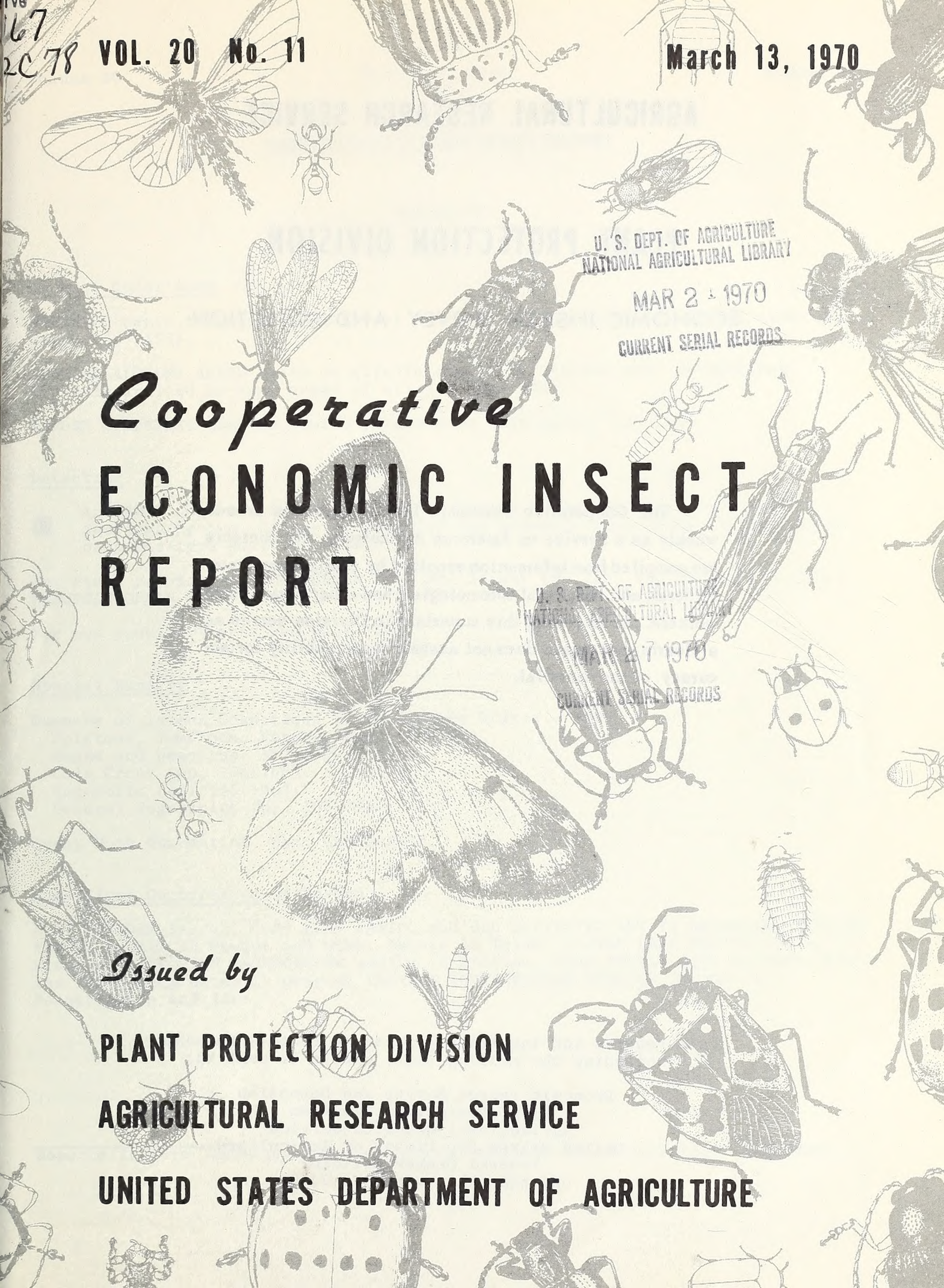

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Cooperative
ECONOMIC INSECT REPORT

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PLANT PROTECTION DIVISION

AGRICULTURAL RESEARCH SERVICE

UNITED STATES DEPARTMENT OF AGRICULTURE

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PLANT PROTECTION DIVISION

ECONOMIC INSECT SURVEY AND DETECTION

The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Division serves as a clearing house and does not assume responsibility for accuracy of the material.

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Economic Insect Survey and Detection
Plant Protection Division
Agricultural Research Service
United States Department of Agriculture
Federal Center Building
Hyattsville, Maryland 20782

Volume 20 March 13, 1970 Number 11

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Current Conditions

GREENBUG heavy on wheat in southwest Oklahoma and damaging in several areas of Texas. (p. 155).

SPOTTED ALFALFA APHID heavy on alfalfa crowns in limited area of Oklahoma. Controls applied in some areas of Arizona. (p. 155).

GARDEN SYMPHYLAN damaged stored potatoes in Washington. (p. 158).

Detection

● An APHID reported for first time in United States is also a new North American record. Little is known of the economic importance. Asparagus is only recorded host. (p. 156).

New State records include APHIDS from New Jersey (p. 156) and Hawaii (p. 159); EUROPEAN GRAIN MOTH from Delaware (p. 158).

For new county records see page 159.

Special Reports

Summary of Insect Conditions in the United States - 1969
- Potatoes, Tomatoes, Peppers (pp. 160-162).
- Beans and Peas (pp. 162-163).
- Cole Crops (pp. 164-165).
- Cucurbits (pp. 165-166).
- General Vegetables (pp. 166-168).

Gypsy Moth Quarantine. Map. Centerfold.

Some First Occurrences of Season

ARMY CUTWORM larvae, CORN LEAF APHID, and RED HARVESTER ANT in Oklahoma; ALFALFA WEEVIL adults in Nevada and Utah, larvae in Texas; CLOVER LEAF WEEVIL larvae in Missouri; IMPORTED CABBAGEWORM adults in Alabama; PEAR PSYLLA eggs in Washington and Idaho, egg hatch in Oregon; EASTERN SUBTERRANEAN TERMITE swarms in Pennsylvania and Iowa.

Reports in this issue are for week ending March 6 unless otherwise indicated.

CONTENTS

Special Insects of Regional Significance....................155

Insects Affecting

Corn, Sorghum, Sugarcane.........155
Small Grains.....................155
Turf, Pastures, Rangeland........155
Forage Legumes...................156
Miscellaneous Field Crops........156
Beans and Peas...................156
Cole Crops.......................156
General Vegetables...............156
Deciduous Fruits and Nuts.......157
Citrus..........................157
Ornamentals.....................157
Forest and Shade Trees..........157
Man and Animals.................157
Households and Structures.......158
Stored Products.................158

Beneficial Insects....................158
Federal and State Plant Protection Programs....................159
Hawaii Insect Report....................159
Detection....................159
Light Trap Collections....................159
Summary of Insect Conditions in the United States - 1969
  Potatoes, Tomatoes, Peppers....................160
  Beans and Peas....................162
  Cole Crops....................164
  Cucurbits....................165
  General Vegetables....................166
Gypsy Moth Quarantine. Map. Centerfold

WEATHER OF THE WEEK ENDING MARCH 9

HIGHLIGHTS: Temperatures continued above normal over the West. Warming over the West. Warming over the East severed the trend that had continued for several weeks. The first thunderstorms of the season occurred in some Central States.

PRECIPITATION: A storm developed in the central Rocky Mountains and moved eastward to the central Great Plains. The storm produced numerous heavy thunderstorms and a few tornadoes as it moved into Kansas. A quasi-stationary front stretched from the storm center eastward to Virginia. Clouds with combinations of rains, drizzle, and fog occurred in the warm moist air south of the front. Mixtures of snow and freezing rain fell in the colder air north of the front. Thunderstorms, some accompanied by wind and hail, occurred along the front and in the warm humid air south of the front. Tornado reports came from Kansas, Texas, Arkansas, Louisiana, Mississippi, and Alabama. Heavy showers caused flooding along some streams in eastern Texas and in Arkansas on Wednesday. About midweek, as the wet weather continued over the eastern half of the Nation, Pacific storms began shaping up in the West. These brought heavy rain to the lower Oregon coast and to California with snow in the high Sierras and the Rockies. Generous rains fell over much of Texas on Friday with 1-day totals exceeding 1 inch at numerous localities. The weekend brought rain to the Pacific Northwest and snow in the Cascades, northern Rockies, and eastward across the northern Great Plains and Great Lakes region to New England. The snow flurries east of the Rockies were, in general, of little importance. Meanwhile, the Texas storm moved eastward bringing rain to the Gulf States with especially heavy rains in the Florida Peninsula. Weekly totals at some Florida localities ranged up to several inches. A tornado at Titusville, Florida, on Thursday caused considerable property damage and a few personal injuries but no deaths were reported.

TEMPERATURE: Temperatures averaged above normal over most of the Nation. The main exceptions were California which averaged 1° to 5° colder than normal and Montana, North Dakota, and northern Minnesota where temperatures averaged 1° to 13° below normal. In much of the West, this was the eighth consecutive warmer-than-normal week. East of the Rocky Mountains, temperatures averaged above normal

Weather continued on page 168.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

ARMY CUTWORM (Chorizagrotis auxiliaris) - OKLAHOMA - Light in scattered southwest area wheatfields, damage insignificant. (Okla. Coop. Sur.).

CORN LEAF APHID (Rhopalosiphum maidis) - OKLAHOMA - Light in scattered wheatfields in southwest area. (Okla. Coop. Sur.).

GREENBUG (Schizaphis graminum) - NEW MEXICO - Generally light, ranged 0-8 per linear foot, on barley in Chaves and Luna Counties. (N.M. Coop. Rpt.). TEXAS - Damage light in Childress, Dickens, and Young Counties, February 22-26. Damage moderate to heavy to small grains in Motley, Hardeman, Foard, and Wilbarger Counties. Some controls applied. Light in Hale and Red River Counties. (Green). Ranged 1-40 per linear foot on wheat in 13 panhandle counties, February 23, 24, and 26. Lowest count 1 per linear foot in 8 counties; highest count 40 per linear foot in Hansford County. (Daniels). OKLAHOMA - Ranged 200-2,000 per linear foot of wheat in Kiowa, Greer, Jackson, Tillman, and Washita Counties. Controls underway in several southwest area counties. Light to moderate in Blaine County; heaviest in Hitchcock area. Ranged 30-70 per linear foot in northwest Payne County and Crescent area of Logan County; ranged 1-15 per linear foot in other areas. (Okla. Coop. Sur.). KANSAS - Surveys negative in central, south-central, and north-central areas. (Martinez, Redding).

POTATO PSYLLID (Paratrioza cockerelli) - CALIFORNIA - Adults medium on Temple orange trees at Thermal, Riverside County. (Cal. Coop. Rpt.).

SPOTTED ALFALFA APHID (Therioaphis maculata) - OKLAHOMA - Ranged 800-1,000 per square foot of crown in alfalfa in Tipton area of Tillman County. Ranged up to 10 per square foot in Payne County. (Okla. Coop. Sur.). ARIZONA - Averaged 100+ per 10 sweeps of Moapa alfalfa in Tolleson area. About 1,000+ acres of alfalfa in area required treatment. Smaller area east of Buckeye also experienced heavy, damaging buildup. Expect problems on Caliverde, Moapa, Sonora, Washoe, African, Chilean, Hairy Peruvian, and Indian varieties. No increase noted in alfalfa on east side of Salt River Valley, Maricopa County. (Ariz. Coop. Sur.).

CORN, SORGHUM, SUGARCANE

EUROPEAN CORN BORER (Ostrinia nubilalis) - ILLINOIS - Preliminary survey of overwintering larvae indicates overall survival of 68 percent in west-southwest and southwest districts. Survival rate higher, 85 percent, in more northern counties in area surveyed as opposed to 43 percent in southernmost sample collected in Alexander County. (Petty).

SMALL GRAINS

AN APHID (Rhopalosiphum padi) - OKLAHOMA - Light and scattered in wheat in Payne and Logan Counties and in southwest area. Ranged 1-10 per linear foot in Payne and Logan Counties when present. (Okla. Coop. Sur.). CALIFORNIA - Heavy on barley at Durham, Butte County. (Cal. Coop. Rpt.).

ENGLISH GRAIN APHID (Macrosiphum avenae) - OKLAHOMA - Ranged 1-10 per linear foot in occasional wheatfield in Payne and Logan Counties. (Okla. Coop. Sur.).

TURF, PASTURES, RANGELAND

A CYDNID BUG (Sehirus cinctus) - CALIFORNIA - Adults heavy in grass areas at Crescent City, Del Norte County. (Cal. Coop. Rpt.).

RED HARVESTER ANT (Pogonomyrmex barbatus) - OKLAHOMA - Active in several areas of Payne County. (Okla. Coop. Sur.).

FORAGE LEGUMES

ALFALFA WEEVIL (*Hypera postica*) - NEVADA - Adults noted in Pershing and southern Washoe Counties February 23-27. (Bechtel, Martinelli). UTAH - Adults numerous in litter at Logan, Cache County. (Knowlton, Feb. 27). MISSISSIPPI - Larvae averaged 8.2 per 20 stems of alfalfa in Pontotoc County. (Pitre). TEXAS - First instars heavy on alfalfa in Wharton and Fort Bend Counties. (Thomas, Smith).

CLOVER LEAF WEEVIL (*Hypera punctata*) - MISSOURI - Early instars ranged 0-9 per square foot in alfalfa (averaged 0.5) and red clover (averaged 2.0) in south-central area. (Munson).

LYGUS BUGS (*Lygus* spp.) - ARIZONA - Adults and nymphs averaged 20 per 10 sweeps of alfalfa and weeds in Tolleson area, Maricopa County. (Ariz. Coop. Sur.).

PEA APHID (*Acyrthosiphon pisum*) - NEW MEXICO - Ranged 1-14 per square foot in alfalfa in Chaves County. (Mathews). Lighter in other alfalfa-growing areas in Luna and Dona Ana Counties. (N.M. Coop. Rpt.).

MISCELLANEOUS FIELD CROPS

EUROPEAN RED MITE (*Panonychus ulmi*) - WASHINGTON - Infested hops in Benton County September 1969. Determined by E.W. Baker. Apparently first record on hops in State. (Cone, Predki).

BEANS AND PEAS

WESTERN BEAN CUTWORM (*Loxagrotis albicosta*) - SOUTH DAKOTA - Adult collected from blacklight trap at Brookings, Brookings County, July 17, 1967. Identification not made until February 1970. This collection supercedes previous adult recoveries in 1968 and 1969. No larvae collected to date. (Jones).

COLE CROPS

IMPORTED CABBAGEWORM (*Pieris rapae*) - ALABAMA - Large numbers of adults, first of season, observed from Talladega County south. Egg laying heavy on cabbage, collards, turnips, and other crops. (Leeper et al.).

GENERAL VEGETABLES

AN APHID (*Brachycolus asparagi* Mordvilko) - NEW YORK - Single alate collected on redtop (*Agrostis alba*) at Orient, Long Island, July 20, 1969, by R. Latham. Determined by F.W. Quednau. This is the first record of *B. asparagi* in North America. This aphid is native to the Mediterranean area and eastern Europe. Asparagus is the only recorded host. Feeding by *B. asparagi* causes seedlings to shrivel or die, and is responsible for severe dwarfing of older plants. (Leonard). NEW JERSEY - Aphids first noted on asparagus plants in Rutgers University horticultural greenhouse at New Brunswick, Middlesex County, in August 1969. Specimens collected November 20, 1969, at this location by J.P. Reed determined by F.W. Quednau. This is a new State record and first known infestation of *B. asparagi* in North America. Aphids found nearby on 2 horticultural farms at East Brunswick in late August and early September 1969. Aphids caused severe rosetting of brush, and damaged young growth, resulting in shortening of internodes. No chlorosis was observed. Aphids fed on cladophylls (modified leaves) and under bracts. Plants in greenhouse and on university farms sprayed during August and September. Last import of asparagus material from Europe (England and Holland) made in 1959. As of February 16, 1970, no *B. asparagi* or recent injury observed in any of the horticultural greenhouses. (Race).

DECIDUOUS FRUITS AND NUTS

PEAR PSYLLA (Psylla pyricola) - WASHINGTON - First mating at Parker Heights, Yakima County, on February 10. First eggs in Parker Heights area February 19, in upper Yakima Valley February 26. Adults heavy with 700+ per tray common. Spraying started February 20 in lower Yakima Valley, February 24 in upper Yakima Valley. Many overwintered adults not in pear orchards by February 27. First eggs in Wenatchee, Chelan County, March 2. On March 3 at Rock Island, Douglas County, adults averaged 266 per tray, no eggs. (Johnson et al.). IDAHO - First eggs of season found in Sunny Slope area, Canyon County, February 27. (Homan). OREGON - Egg hatch began on pears in Medford area, Jackson County, February 27. Sprays applied. (Berry).

PEACH TWIG BORER (Anarsia lineatella) - ARIZONA - Larvae on apricot, peach, and plum trees in Tucson area, Pima County. (Ariz. Coop. Sur.).

SAN JOSE SCALE (Aspidiotus perniciosus) - WASHINGTON - Generally heavy carryover with high percentage of surviving third stage nymphs observed January 26 in Yakima County. (Johnson).

PECAN WEEVIL (Curculio caryae) - ALABAMA - Unusually large number of larvae in nuts on ground in 50-acre pecan orchard in Crenshaw County. (Leeper et al.).

HICKORY SHUCKWORM (Laspeyresia caryana) - ALABAMA - Larvae in shucks of nuts under trees in 50-acre pecan orchard in Crenshaw County. (Smith et al.).

CITRUS

CALIFORNIA RED SCALE (Aonidiella aurantii) - CALIFORNIA - Heavy in 8-acre citrus grove at Fillmore, Ventura County. (Cal. Coop. Rpt.). ARIZONA - Found 2 additional infestations at Yuma, Yuma County. (Ariz. Coop. Sur.).

ORNAMENTALS

AZALEA LACE BUG (Stephanitis pyrioides) - FLORIDA - Nymphs and adults moderate on 90 percent of 8,000 azalea plants in nursery at Plant City, Hillsborough County, February 23. (Pierce, Vaughan).

SOFT SCALES (Ceroplastes spp.) - ALABAMA - C. floridensis (Florida wax scale) crawlers emerging and heavy throughout 60-acre magnolia planting in Conecuh County. Controls in progress. (Leeper, Huggins). VIRGINIA - Ceroplastes sp. heavy on individual plants of holly and euonymus at several locations at Franklin, Southampton County. (Pierce, February 27).

FOREST AND SHADE TREES

AN ERIOPHYID MITE (Trisetacus alborum) - CALIFORNIA - Collected on sugar pine at Cobb, Lake County, February 20, 1970. Feeding induces lateral growths with multiple buds bearing primary needles. Not previously reported on sugar pine. (Cal. Coop. Rpt.).

A SCOLYTID (Poecilips rhizophorae) - FLORIDA - Adults collected from newly germinated mangrove seeds at Longboat Key, Manatee County, January 21, 1970, by J.R. McFarlin. Determined by R.E. Woodruff. This is a rare species; no previous report of damage. (Mead; Tri-ology).

MAN AND ANIMALS

SCREW-WORM (Cochliomyia hominivorax) - No cases reported in U.S. March 1-7. Total of 59 laboratory-confirmed cases reported in portion of Barrier Zone in Republic of Mexico February 22-28 as follows: Baja California 1, Sonora 57, Tamaulipas 1. Total of 4 cases reported in Mexico south of Barrier Zone. Barrier Zone is area where eradication operation underway to prevent establishment of self-sustaining population in U.S. Sterile screw-worm flies released: Texas 1,568,000; Mexico 143,900,000. (Anim. Health Div.).

COMMON CATTLE GRUB (*Hypoderma lineatum*) - FLORIDA - Larvae averaged 6 per head of untreated beef cattle at Belle Glade, Palm Beach County, February 20. (Janes). TENNESSEE - Larvae averaged 6.3 per head on 12 of 27 head of cattle. (Edwards et al.).

HORN FLY (*Haematobia irritans*) - FLORIDA - Averaged 60 per head of beef cattle at Belle Glade, Palm Beach County, February 20. (Janes).

MOSQUITOES - FLORIDA - Larvae of *Aedes canadensis*, *A. infirmatus*, and *A. vexans* common in logging road ruts near Lamont, Jefferson County, February 27. (Mead).

A BLACK FLY (*Simulium vittatum*) - IDAHO - Numerous north of Stone, Oneida County, especially at outlet of Curlew Valley Reservoir. (Knowlton).

CATTLE LICE - OKLAHOMA - Mostly *Haematopinus eurysternus* (short-nosed cattle louse) very heavy on feedlot cattle in panhandle counties. Heavy in Noble and Mayes Counties. (Okla. Coop. Sur.). FLORIDA - *H. quadripertusus* (cattle tail louse) slightly less abundant on beef cattle than at same time last year at Belle Glade, Palm Beach County, February 20. (Janes).

NORTHERN FOWL MITE (*Ornithonyssus sylviarum*) - MISSISSIPPI - Light on caged hens at State College, Oktibbeha County. (Sartor).

HOUSEHOLDS AND STRUCTURES

EASTERN SUBTERRANEAN TERMITE (*Reticulitermes flavipes*) - PENNSYLVANIA - Swarming at Philadelphia, Delaware County. (Tetrault, Feb. 26). IOWA - Winged forms reported March 4 from Ottumwa, Wapello County. (Iowa Ins. Sur.).

GERMAN COCKROACH (*Blattella germanica*) - ARIZONA - Heavy in some areas of Tucson, Pima County. (Ariz. Coop. Sur.).

STORED PRODUCTS

EUROPEAN GRAIN MOTH (*Nemapogon granella*) - DELAWARE - Larvae collected in shredded coconut in warehouse at Wilmington, New Castle County, November 13, 1969, by B. Nelson. Determined by D.M. Weisman. This is a new State record. (Burbutis).

COWPEA WEEVIL (*Callosobruchus maculatus*) - IDAHO - Infestation in commercial pea storage at Moscow, Latah County. (Portman).

DERMESTID BEETLES - CALIFORNIA - *Trogoderma inclusum*, *T. simplex*, *T. variabile*, and *Anthrenus* sp. medium in warehouses at Madera, Madera County; collected on trogotraps. Medium in chicken mash and rolled oats at Kernville, Kern County. Trogotrap collections light in most areas. (Cal. Coop. Rpt.).

GARDEN SYMPHYLAN (*Scutigerella immaculata*) - WASHINGTON - Damaged ground-stored potatoes at Seattle, King County. (Forsell).

BENEFICIAL INSECTS

LADY BEETLES - OKLAHOMA - *Hippodamia convergens* (convergent lady beetle) averaged 1.5 per square foot of crown of alfalfa in Tillman County. Occasional specimens in wheat in southwest area. (Okla. Coop. Sur.). ALABAMA - Overwintering adults of *Psyllobora vigintimaculata* emerged and feeding on aphids in Lee County. (McQueen).

A BRACONID (*Lysiphlebus testaceipes*) - OKLAHOMA - Common in greenbug infested fields in southwest area, especially in Jackson and Tillman Counties; ranged 2-4 per linear foot. Greenbug and *Rhopalosiphum padi* parasitized in Payne and Logan Counties. (Okla. Coop. Sur.).

AN ICHNEUMON WASP (*Bathyplectes curculionis*) - MISSOURI - Cocoons of this alfalfa weevil parasite collected in Lincoln, Pike, Montgomery, and Warren Counties by L.R. Hanning. These are new county records. (Munson).

FEDERAL AND STATE PLANT PROTECTION PROGRAMS

GRASSHOPPERS - OKLAHOMA - Egg surveys in selected rangeland areas of Beaver, Cimarron, Dewey, Ellis, Harper, Woods, and Woodward Counties show average of 1 viable egg pod per square yard of sod examined. Most eggs in clear to eye-spot stages. Parasite and predator damage light. (Okla. Coop. Sur.).

HAWAII INSECT REPORT

New State Record - An APHID (*Nasonovia ribisnigri*) collected on flowers of *Crepis japonica* at Puulau, Hawaii, by B. Hu and G. Fukumura, December 6, 1964. Determined by L.M. Russell. Recorded hosts are Compositae (*Cichorium*, *Hieracium*, *Crepis*, *Sonchus*, *Lactuca*, *Arnoseris*, *Lampsona*, etc.), Scrophulariaceae (*Veronica*), Cruciferae (*Alliaria*), and various species of *Ribes* and *Grossularia reclinata*. Distribution of this pest includes Transcaucasia, Soviet Central Asia, and western Europe. (Kawamura). Also occurs in Vermont, California, Montana. (PPD).

General Vegetables - Adults of LEAF MINER FLIES (*Liriomyza* spp.) moderate to heavy in 2 small plantings of tomato and Italian squash; mines light at Kahului, Maui. Adults light in 2.5 acres of tomato; mines heavy on older leaves at Kona, Hawaii. (Miyahira, Kobayashi). GREENHOUSE WHITEFLY (*Trialeurodes vaporariorum*) heavy in 4.5 acres of old tomato planting at Kona, Hawaii; moderate in adjacent 2.5 acres of younger plants. Generally troublesome in tomato and cucumber fields at Kona, Hawaii, despite intensive spray program. (Kobayashi). Eggs and adults of IMPORTED CABBAGEWORM (*Pieris rapae*) and eggs of CABBAGE LOOPER (*Trichoplusia ni*) light in small planting of broccoli at Kahului, Maui; no larvae seen. (Miyahira). CARMINE SPIDER MITE (*Tetranychus cinnabarinus*) heavy in 0.25 acre of eggplant at Kahului, Maui; about 50-75 per square inch on under surface of leaves. (Miyahira). BEAN FLY (*Melanagromyza phaseoli*) heavy in small planting of snap beans at Mana, Kauai; 98 percent of seedlings seriously affected. (Davis).

Man and Animals - MOSQUITOES - Total collected from 55 light traps on Oahu during February: VEXANS MOSQUITO (*Aedes vexans nocturnus*) 288 and SOUTHERN HOUSE MOSQUITO (*Culex pipiens quinquefasciatus*) 1,861. *Aedes* up to high of 102 per trap and *Culex* up to high of 278 per trap at Kahaluu. (Mosq. Contr. Br., Dept. of Health).

Beneficial Insects - Eggs, larvae, and adults of a SCIOMYZID FLY (*Sepedon sauteri*), a snail predator, numerous in taro plantings at Hanapepe, Kauai. (Davis).

Miscellaneous Pests - Collected and destroyed total of 492 individuals of GIANT AFRICAN SNAIL (*Achatina fulica*) on Kauai during February: 490 at Poipu, 2 at Wahiawa, none at Nawiliwili. Baiting continues at Poipu and Wahiawa. No live snails detected during February at Kona, Hawaii. (Sugawa, Matayoshi).

DETECTION

New North American Record - An APHID (*Brachycolus asparagi*) NEW YORK - Orient, Suffolk County (p. 156).

New State Records - An APHID (*Brachycolus asparagi*) NEW JERSEY - Middlesex County (p. 156). An APHID (*Nasonovia ribisnigri*) HAWAII - Hawaii Island (p. 159). EUROPEAN GRAIN MOTH (*Nemapogon granella*) DELAWARE - New Castle County (p. 158).

New County Records - An ICHNEUMON WASP (*Bathyplectes curculionis*) MISSOURI - Lincoln, Montgomery, Pike, Warren (p. 158).

LIGHT TRAP COLLECTIONS

FLORIDA - Gainesville, 2/27-3/5, BL - Armyworm (*Pseudaletia unipuncta*) 2, granulate cutworm (*Feltia subterranea*) 33, salt-marsh caterpillar (*Estigmene acrea*) 3.

SUMMARY OF INSECT CONDITIONS IN THE UNITED STATES - 1969

(Continued from page 150)

POTATOES, TOMATOES, PEPPERS

Highlights:

COLORADO POTATO BEETLE was heavy in Tennessee, and overwintering populations were heavier than usual on the Virginia Eastern Shore. TOBACCO FLEA BEETLE was widespread and damaging to tomatoes in California. CABBAGE LOOPER required controls on potatoes in Nevada and tomatoes in Arizona. Infestations caused severe damage to tomatoes on the Eastern Shore of Virginia. TOMATO FRUITWORM caused very heavy damage to tomatoes in this same area of Virginia. EUROPEAN CORN BORER was of some concern on potatoes in Maryland and peppers in Delaware.

COLORADO POTATO BEETLE (Leptinotarsa decemlineata) adults in IDAHO were numerous on emerging potato plants near Parma, Canyon County, in early May. Controls were needed. Adults and larvae damaged 10 percent of a small planting at Weiser, Washington County, in early May. By July 15 a few egg clusters, 137 larvae, and 3 adults per 5 row feet, and some severely defoliated plants were present at Aberdeen, Bingham County. In UTAH, damage was above normal on potatoes and this pest was common on tomatoes in Weber, Davis, and Cache Counties. Up to 15 larvae per potato plant were found in COLORADO throughout Weld, Larimer, Morgan, and Boulder Counties. Controls checked infestations; where controls were late or not applied, damage was heavy. Losses were light to moderate overall. Colorado potato beetle caused concern in commercial potatoes in Stafford County, KANSAS, in May. Most fields were treated several times. Potatoes were damaged in OKLAHOMA mostly in mid and late May.

Colorado potato beetle was kept under control in the 16,500 acres of commercial potatoes in ALABAMA. Heavy populations occurred throughout TENNESSEE in May and June. While of minor importance in OHIO in recent years, Colorado potato beetle has been increasing in the north-central area for the past year or two. Potatoes were severely damaged at Celeryville, Huron County.

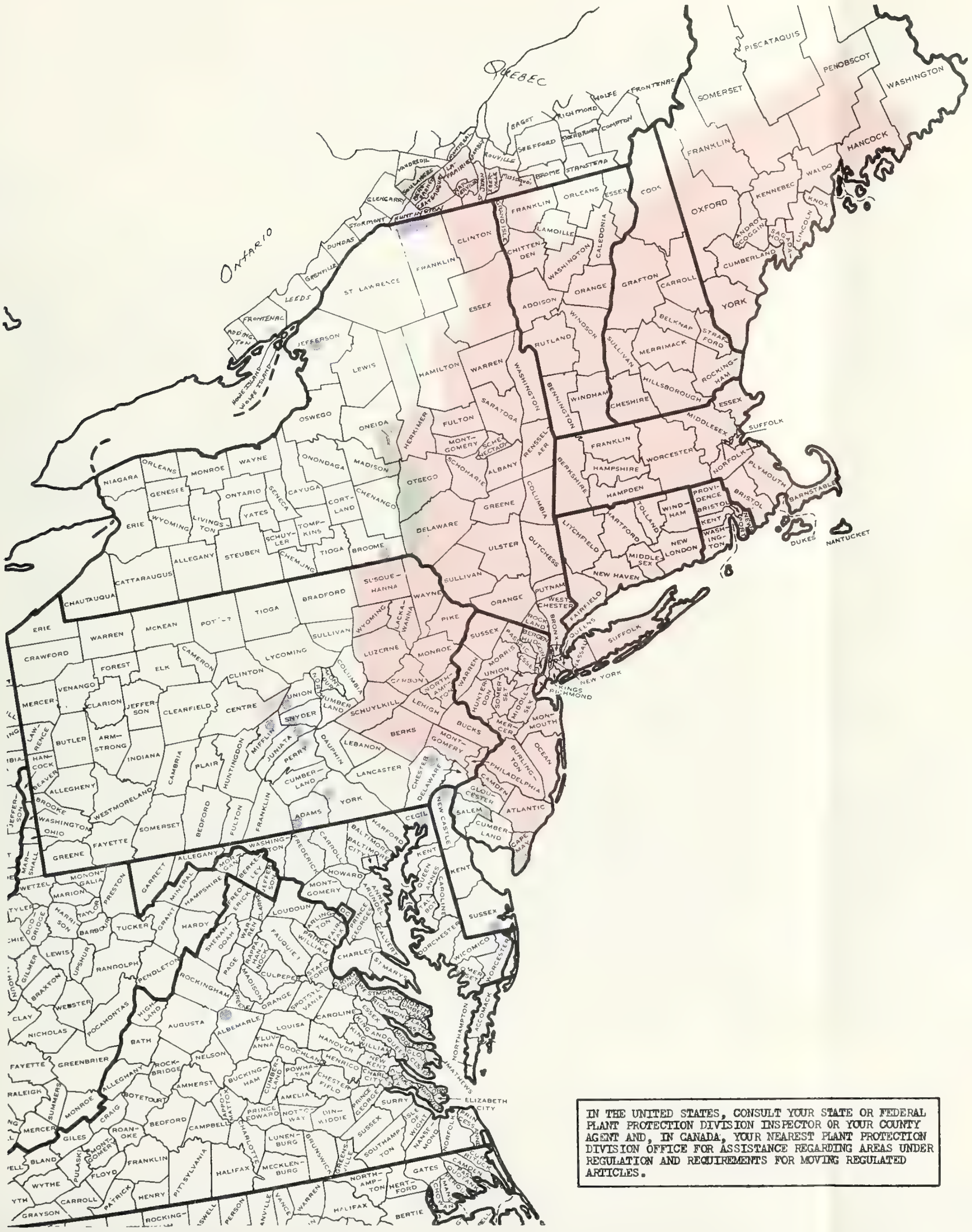
Early overwintering populations of Colorado potato beetle were heavier than in recent years on the Eastern Shore of VIRGINIA. The first brood defoliated all emerging potato shoots in many fields in April. Fall populations were much lighter than in recent years. Systemic insecticides were effective. Heavy numbers in MARYLAND defoliated 80-100 percent of untreated garden potatoes. Timely sprays prevented commercial losses. Controls on commercial potatoes appeared to be effective in most areas of DELAWARE. In NEW JERSEY, Colorado potato beetle was moderate on potatoes, tomatoes, eggplants, and peppers through June. Damage was lighter than usual. Numbers were up from 1968 on potatoes in CONNECTICUT. In RHODE ISLAND, adults, eggs, and first to third instars infested many fields by June 18 in Washington County. Counts were numerous in unsprayed fields by August 7.

POTATO FLEA BEETLE (Epitrix cucumeris) adults in RHODE ISLAND were light on potatoes May 26 in Washington County and noted on tomatoes June 19 in Providence County. E. cucumeris adults in DELAWARE were common by early May on potatoes along field edges. Subsequent populations appeared to be controlled on potatoes and tomatoes in most areas. In VIRGINIA, E. cucumeris caused very little damage to potatoes, but fairly high numbers of TOBACCO FLEA BEETLE (E. hirtipennis) on the fall crop of potatoes needed treatment in some areas of Accomack and Northampton Counties. E. hirtipennis was widespread and damaging to tomatoes in CALIFORNIA. It was much more prevalent over a long period than previously. TUBER FLEA BEETLE (E. tuberis) continued at low levels in OREGON. The most southern occurrence in the State is now known to be Provolt, Jackson County.

GYPSY MOTH

COOPERATIVE FEDERAL, STATE, AND CANADIAN QUARANTINES

U. S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL RESEARCH SERVICE
PLANT PROTECTION DIVISION
AND CANADIAN DEPARTMENT OF AGRICULTURE
COOPERATING WITH AFFECTED STATES



IN THE UNITED STATES, CONSULT YOUR STATE OR FEDERAL PLANT PROTECTION DIVISION INSPECTOR OR YOUR COUNTY AGENT AND, IN CANADA, YOUR NEAREST PLANT PROTECTION DIVISION OFFICE FOR ASSISTANCE REGARDING AREAS UNDER REGULATION AND REQUIREMENTS FOR MOVING REGULATED ARTICLES.

COUNTIES ENTIRELY COLORED ARE COMPLETELY REGULATED;
COUNTIES PARTIALLY COLORED ARE PARTIALLY REGULATED

🟥 GENERALLY INFESTED AREA-STATE, FEDERAL, AND CANADIAN REGULATIONS.
(ERADICATION TREATMENTS NOT IN PROGRESS OR PLANNED)

🟩 SUPPRESSIVE AREA-STATE, FEDERAL, AND CANADIAN REGULATIONS.
(SUPPRESSIVE TREATMENTS IN PROGRESS OR PLANNED)

🟦 STATE REGULATIONS ONLY.
(SUPPRESSIVE TREATMENTS PLANNED WHERE NECESSARY)

RESTRICTIONS ARE IMPOSED ON MOVEMENT OF REGULATED ARTICLES FROM A REGULATED AREA AS FOLLOWS:

1. FROM RED INTO OR THROUGH GREEN, BLUE, OR WHITE.
2. FROM GREEN INTO OR THROUGH WHITE OR BLUE.
3. GREEN INTO GREEN.
4. WITHIN GREEN.*
5. FROM BLUE INTO ANY OTHER AREA.**

*IF REQUIRED BY AN AUTHORIZED INSPECTOR.
**IF REQUIRED BY APPROPRIATE STATE QUARANTINE OR BY AN AUTHORIZED INSPECTOR.

SEE REVERSE SIDE FOR REQUIREMENTS CONCERNING CERTIFICATION OF REGULATED ARTICLES.

REVISED JANUARY 28, 1970

THE FOLLOWING CROPS OR ARTICLES MUST BE MOVED UNDER CERTIFICATE OR PERMIT YEAR-ROUND EXCEPT AS INDICATED.

1. Trees, shrubs with persistent woody stems, and parts thereof, except seeds, fruits, and cones.

   Trees and shrubs, and parts thereof, are exempt if grown in a greenhouse throughout the year and so labeled on the outside of each container.*
   Boughs, cuttings, and scions with stems no greater than one-half inch in diameter are exempt.*
   Parts of trees and shrubs that have been dried, pressed, waxed, lacquered, varnished, or similarly surface-treated, are exempt.*

2. Timber and timber products, including but not limited to lumber, planks, poles, logs, cordwood, and pulpwood.

   Lumber is exempt if dressed or sawed four sides with ends clipped and free of surface bark, or if kiln dried, provided such lumber is shipped direct after processing and the waybill or other shipping document is marked to show that the lumber was shipped immediately after processing.*
   Manufactured wood products, such as shingles, flooring, furniture, handles, etc., are exempt.*
   Shavings, sawdust, wood flour, excelsior, and cedar bedding are exempt.*

3. Stone and quarry products.

   Stone and quarry products are exempt if processed by grinding or pulverizing.*
   Mined, quarried, or manufactured stone and quarry products are exempt if shipped direct from establishments specifically approved by the Director.**

4. Trailers of all types, including mobile homes, when the person in possession thereof has been so notified by an inspector.

* Exempt if not exposed to infestation after the prescribed handling.

** Information as to approved establishments may be obtained from an inspector.

CABBAGE LOOPER (*Trichoplusia ni*) required controls on potatoes in Lyon County, NEVADA, in mid-July. Controls were required on tomatoes in June at Yuma, Yuma County, ARIZONA. Cabbage looper was probably the most difficult pest to control in the State in 1969. Cabbage looper damaged potatoes in several areas of UTAH, including Emery, Grand, and Salt Lake Counties. Larvae occasionally damaged tomatoes in scattered locations in Utah. Cabbage looper ranged light to heavy on tomatoes and potatoes in COLORADO. Larvae appeared late in July and populations peaked in mid-August. Up to 35 per 100 sweeps were found. Controls were effective, and losses were moderate in Colorado. Cabbage looper and BEET ARMYWORM (*Spodoptera exigua*) were troublesome on tomatoes in the Bradenton area of Manatee County, FLORIDA. *T. ni* was heavier than usual in Northampton and Accomack Counties, VIRGINIA, in July and August. Damage to tomatoes was severe. Virus diseases reduced these populations in August.

TOMATO FRUITWORM (*Heliothis zea*) was again the most important pest of tomatoes in ALABAMA in home gardens and in 9,000 acres of commercial plantings. All fields received 15 to 30 applications of insecticides. Severe numbers in VIRGINIA occurred from August through September in Northampton and Accomack Counties. Some fields of tomatoes were entirely lost. Larvae infested 75 percent of untreated late tomatoes over widespread areas. Damage was extremely heavy. Larvae in DELAWARE heavily infested sweet peppers in late August and September. In spite of the heavy numbers in NEW JERSEY, damage by tomato fruitworm was kept to a minimum because of grower awareness. Tomato injury was light to moderate.

GRANULATE CUTWORM (*Feltia subterranea*) was heavy on most of the 7,500 acres of potatoes in De Kalb and other Sand Mountain counties of ALABAMA in early July and destroyed 5-10 percent of the crop. This was the first damaging infestation in 10 or more years.

EUROPEAN CORN BORER (*Ostrinia nubilalis*) was light on pimento peppers in 6,000 acres of north ALABAMA. Larvae in MICHIGAN damaged potatoes and peppers. Although numbers were low throughout WEST VIRGINIA, damage was bad on sweet peppers and other vegetable crops. Damage in MARYLAND was heaviest in a 100-acre stand of potatoes in Somerset County where 70 percent of the shoots were lost. Timely controls were effective in Worcester and Somerset Counties. Larvae very heavily infested untreated or poorly treated potato vines in Kent County, DELAWARE, in May and June. Infestations in untreated sweet peppers averaged 25 percent in late July and August and increased to 85 percent fruit infestation in September and October. Populations were light to moderate in NEW JERSEY. Injury to peppers, eggplants, and potatoes was insignificant where scheduled insecticide applications were made. Second-generation borers did not cause serious problems to any vegetable crop. European corn borer was a problem in a few potato fields in CONNECTICUT.

TOMATO PINWORM (*Keiferia lycopersicella*) heavily damaged tomatoes in southern CALIFORNIA. In some potato areas of the State, POTATO TUBERWORM (*Phthorimaea operculella*) ranged light to medium. *P. operculella* in UTAH was trace in Washington and Iron Counties. *P. operculella* was not found in ALABAMA in Baldwin, Mobile, or Escambia Counties due to well-planned survey and control efforts the previous season. During the growing season in MICHIGAN many commercial fields in Monroe and Lenawee Counties were constantly checked for *P. operculella*. On August 20 a limited infestation was found in an eggplant field in Monroe County; controls were effective. On August 28 a commercial field in this county was infested. Infestations in the county appeared to be widespread but light. Several fields infested at harvest led to infestations in storage. The few *P. operculella* infestations in OHIO were restricted to the Lorain County area. There were some heavy infestations on potatoes. Greenhouses are prevalent in the area. *P. operculella* infested potato fields in Cambria County, PENNSYLVANIA.

GREEN PEACH APHID (*Myzus persicae*) averaged 3-4 winged and wingless forms per 25 leaves on potato plants near Lynden, Whatcom County, WASHINGTON. Damage in OREGON was heavy in several bell pepper fields in Clackamas and Marion Counties. Control was difficult. *M. persicae* was common on potatoes in UTAH. *M. persicae* increased rapidly in July in the Arkansas Valley of COLORADO. Controls effectively kept numbers down, but heavy tomato and potato foliage prevented elimination of infestations. Damage was light to moderate; loss was light. In FLORIDA the heaviest population of *M. persicae* in 3 years killed unprotected potatoes at Hastings, St. Johns County. Numbers were also heavy on bell peppers at Tampa, Hillsborough County, in May. In MARYLAND, systemic insecticides suppressed light to moderate numbers of *M. persicae* and POTATO APHID (*Macrosiphum euphorbiae*) on potatoes during harvest in Worcester and Somerset Counties. Controls for *M. persicae* in DELAWARE on commercial peppers and potatoes were adequate in most areas. In RHODE ISLAND, *M. persicae* was heavy on some varieties of potatoes on July 30 in Washington County. Predators and disease had reduced aphids on potatoes by August 7.

MIGRATORY GRASSHOPPER (*Melanoplus sanguinipes*) and TWO-STRIPED GRASSHOPPER (*M. bivittatus*) caused medium to heavy damage to a small acreage of certified seed potatoes in Eureka County, NEVADA, in August.

VINEGAR FLIES (*Drosophila* spp.) built up heavily in tomatoes in MARYLAND after heavy rains in late July and early August. Counts ranged as high as 150-200 per row foot in Wicomico, Dorchester, and Worcester Counties. In NEW JERSEY, *Drosophila* spp. were significantly more abundant than in recent years due to plentiful summer rains. By August 19 at Hammonton, Atlantic County, over 500 eggs were counted per 1.5-inch slit in 24 hours. Grower awareness prevented abundant egg laying from occurring in processing tomatoes.

PEPPER MAGGOT (*Zonosemata electa*) populations in NEW JERSEY were similar to past years. Injury was insignificant in pepper fields where insecticides were applied on schedule. Counts in CONNECTICUT were heavier than usual.

Damage by SPIDER MITES (*Tetranychus* spp.) to tomatoes in OKLAHOMA was heaviest in late August. TWO-SPOTTED SPIDER MITE (*T. urticae*) was light to moderate on potatoes, tomatoes, and peppers in NEW JERSEY. Populations were heavier on eggplant; injury was moderate.

BEANS AND PEAS

Highlights:

MEXICAN BEAN BEETLE damaged beans in the Arkansas Valley and other areas of Colorado, and was serious on beans in Alabama. WESTERN YELLOW-STRIPED ARMYWORM damaged peas in Idaho. CABBAGE LOOPER severely damaged beans on the Eastern Shore of Virginia.

MEXICAN BEAN BEETLE (*Epilachna varivestis*) was common on beans in all infested areas of UTAH. Injury was above normal. In COLORADO, adults appeared in early June and larvae appeared in late July. Populations ranged up to 30 per bean plant. Damage occurred in the Arkansas Valley and in Morgan, Weld, Larimer, and Boulder Counties. Damage ranged light to heavy. Controls were effective. Damage appeared where controls were applied late or ineffectively. Loss was moderate. Damage in WYOMING decreased. Damage was light; controls were applied in Goshen and Platte Counties. Mexican bean beetle reached a long-time low in MICHIGAN. Droughts did not occur in 1969. Mexican bean beetle was a serious and damaging pest of lima and pole beans, and to a lesser extent, of field peas throughout ALABAMA. Populations were high and about the same as in 1967 and 1968. For Mexican Bean Beetle in Idaho see CEIR 20(8):92.

PEA WEEVIL (*Bruchus pisorum*) infested peas in many gardens in UTAH; control was needed during spring. BEAN LEAF BEETLE (*Cerotoma trifurcata*) was the major pest of beans and peas in OKLAHOMA. Damage occurred in the south-central area in early May and in the northeast area in late August. *C. trifurcata* was a pest mainly of peas and beans in the 2 to 6-leaf stage throughout 1969 in ALABAMA. COWPEA CURCULIO (*Chalcodermus aeneus*) remained one of the major pests in the 6,000 acres of commercial peas in ALABAMA. Infestations in harvested peas were about the same as in 1967 and 1968 but fewer than in 1966 due to intensified controls.

WESTERN YELLOW-STRIPED ARMYWORM (*Prodenia praefica*) in WASHINGTON damaged dry peas and lentils. This was the second severe outbreak recorded on lentils. ALFALFA LOOPER (*Autographa californica*) was a problem on fresh peas in several eastern areas of WASHINGTON, and severe on dry peas and many crops particularly in Whitman, Columbia, and Walla Walla Counties. In IDAHO, *P. praefica* severely defoliated peafields at Lewiston, Nez Perce County, in late May. By early July, third instars to fully grown larvae ranged up to 2 per square yard at Lewiston. By early August in Latah County, second instars to fully grown larvae ranged up to 8 per square yard on peas and lentils in localized areas. Controls were necessary in some fields. *A. californica* was spotty in peafields and along fence rows in early June in Latah County, IDAHO. Counts numbered 2 per sweep or 6-8 per square yard. Most larvae were fourth stage. Many fields were treated.

GREEN CLOVERWORM (*Plathypena scabra*) populations returned to normal after the outbreaks of 1968 in MINNESOTA. To control "loopers" on peas in southern counties, a total of 3,753 acres was sprayed. Green cloverworm was common by mid-August on lima beans in DELAWARE. Peak flights averaged 150 per night August 15-20 and averaged over 25 per night into September. Heavier than usual numbers of CABBAGE LOOPER (*Trichoplusia ni*) in Northampton and Accomack Counties, VIRGINIA, in July and August severely damaged snap beans. In August, virus diseases reduced populations.

VELVETBEAN CATERPILLAR (*Anticarsia gemmatalis*) was moderate to severe on 40+ acres of pigeonpeas at Gainesville, Alachua County, FLORIDA, during August and September. During October and November, larvae of a NOCTUID MOTH (*Pseudoplusia includens*) caused heavy damage to beans on the lower east coast of FLORIDA and to a lesser extent in the Everglades area. Control was very difficult to obtain.

EUROPEAN CORN BORER (*Ostrinia nubilalis*) damaged snap beans in MICHIGAN. In one county 250 acres of snap beans were not harvested because of pod damage. ALFALFA CATERPILLAR (*Colias eurytheme*) in IDAHO damaged processing peas at Lewiston, Nez Perce County. Controls were required the first of June.

PEA APHID (*Acyrthosiphon pisum*) migrations into peafields at Lewiston, Nez Perce County, IDAHO, during spring were somewhat lighter and later than those recorded in previous years. Light to moderate numbers infested canning peas and home gardens in northern UTAH. The maximum count in peas in WISCONSIN was 3 per 10 sweeps. Populations in peas did not justify treatment. In DELAWARE, counts on peas averaged 1 per sweep in mid-May and about 3 per sweep in late May.

MELON APHID (*Aphis gossypii*) in IDAHO was unusually abundant in a lima bean field at Caldwell, Canyon County, July 10. Controls were required. COWPEA APHID (*A. craccivora*) was widespread in ALABAMA. Heavy numbers occurred in home and commercial plantings. This species was probably the vector of a widely distributed and damaging cowpea mosaic throughout the State. BEAN APHID (*A. fabae*) was common in DELAWARE only during mid-July on lima beans in eastern Sussex County.

COLE CROPS

Highlights:

CABBAGE LOOPER damaged cole crops in California and Utah. Infestations were heavy in eastern Colorado. Control of cabbage looper was a major problem in Arkansas. This pest was damaging throughout Alabama. IMPORTED CABBAGEWORM and DIAMONDBACK MOTH were damaging to cole crops in Alabama.

CABBAGE LOOPER (Trichoplusia ni) larvae contaminated several lots of processing broccoli in OREGON. Weather during August 1969 was more normal than the wet, cold conditions during the same period in 1968, and larval populations approached the levels of 1966 and 1967. Cabbage looper caused widespread damage to all cole crops in CALIFORNIA, and was damaging in UTAH. Larvae ranged moderate to heavy in eastern COLORADO. Damage was moderate where controls were adequate. Losses to cabbage in Colorado ranged moderate to heavy.

Cabbage looper had damaged cabbage in Racine County, WISCONSIN, by August 1. In Columbia County, less than one percent of the cabbage was infested by August 8. Populations increased statewide in noncommercial plantings in late August. Larval feeding was light on cole crops in Waushara County by September 19. Damage to commercial plantings was insignificant due to controls. Cabbage looper populations were low in MICHIGAN. The most striking situation was the repeated seeding of a cauliflower field due to poor control of this pest in parts of the planting. In ILLINOIS most control programs were too late to control young larvae on cabbage and related crops.

Cabbage looper is the principal pest of greens crops in ARKANSAS. Control of this pest was a major problem in 1969. Mixed larval populations of cabbage looper and a NOCTUID MOTH (Pseudoplusia includens) damaged cabbage, collards, and other cole crops throughout ALABAMA. Cabbage looper in FLORIDA was very light on cabbage at Sanford, Seminole County, January to March compared to the light numbers in previous years. Larvae ranged 6-8 per plant in May. Fall numbers were much lighter than in previous years. Counts at Hastings, St. Johns County, were heavy in April and May. By early April this pest caused much damage to cabbage at Belle Glade, Palm Beach County, with peak damage in late April and early May. Counts were heavy, 4 larvae per plant, on unsprayed cabbage at Bradenton, Manatee County, during late winter.

Cabbage looper populations on broccoli in VIRGINIA were not reduced as much as expected by virus diseases in August. Larvae were troublesome throughout the season. Populations built up less rapidly than normal throughout NEW JERSEY until mid-September when they leveled off. Heavy late summer and early fall populations did not occur, due mainly to a naturally occurring polyhedrosis virus. Cabbage looper populations in CONNECTICUT were lower than normal.

BEET ARMYWORM (Spodoptera exigua) heavily damaged some cabbage at Belle Glade, Palm Beach County, FLORIDA, from October to December. One 100-acre field was abandoned.

IMPORTED CABBAGEWORM (Pieris rapae) was heavy locally in CALIFORNIA on all cole crops and required repeated treatments. Larvae were damaging in UTAH. Imported cabbageworm was one of the most destructive pests on commercial and home plantings of cabbage, collards, and other cole crops in ALABAMA. Larvae in WISCONSIN infested cabbage in Waushara, Richland, Calumet, and Price Counties in mid-July. By early August less than 2 percent of the plants had live larvae due to controls. Insecticide treatments prevented significant damage. Although the spring brood emerged in a normal pattern in MICHIGAN, the succeeding summer population was about 30 percent below that of the past 2-3 years. Populations in NEW JERSEY were typically abundant. Injury ranged light to moderate on cabbage and related crops.

DIAMONDBACK MOTH (*Plutella xylostella*) occurred in damaging numbers in isolated areas throughout ALABAMA on all cole crops, mainly on turnips, mustard, cabbage, and collards. In August, 300-600 acres of commercial collards were heavily damaged in Cullman County. Control was difficult. In FLORIDA, larvae were heavy on cabbage throughout the season at Hastings, St. Johns County. Counts were heavy during winter and very heavy during spring on untreated or poorly treated crucifers at Belle Glade, Palm Beach County. Damage was moderate on untreated cabbage and very light on commercial cabbage during February at Sanford, Seminole County. Larvae were very severe on broccoli and cauliflower at Bradenton, Manatee County, in late February and early March. Diamondback moth larvae were typically abundant on crucifers during 1969 in NEW JERSEY but were not too difficult to control.

Numerous adults of a FLEA BEETLE (*Phyllotreta cruciferae*) caused noticeable injury to crucifers in July in New Castle County, DELAWARE. YELLOW-MARGINED LEAF BEETLE (*Microtheca ochroloma*) was serious in Mobile and Baldwin Counties, ALABAMA. It was reported as far north as Lee County. CABBAGE SEEDPOD WEEVIL (*Ceutorhynchus assimilis*) populations in IDAHO were 60 percent below those recorded in 1968 at Lewiston in Nez Perce County. Counts averaged 1 per sweep in rape fields in late May; only one field required control. Adults ranged from 2-3 per sweep along margins to less than 1 per 5 sweeps toward the centers of the fields May 26 at Troy, Latah County. VETCH BRUCHID (*Bruchus brachialis*) adults ranged 3-4 per sweep along margins of rape seed fields and about 1 per sweep toward the centers of these fields in late May at Lewiston, Nez Perce County, IDAHO.

CABBAGE APHID (*Brevicoryne brassicae*) was light and easy to control in NEW JERSEY during spring. *B. brassicae* in FLORIDA was heavy throughout the season on cabbage at Hastings, St. Johns County. Damage was moderate to untreated cabbage at Sanford, Seminole County; commercial fields usually escaped damage. In ALABAMA, *B. brassicae* was a serious pest of cabbage and collards in all counties. TURNIP APHID (*Hyadaphis pseudobrassicae*) was damaging all summer and winter on turnips and mustard in ALABAMA. *B. brassicae* populations were normal in UTAH.

SEED-CORN MAGGOT (*Hylemya platura*) and CABBAGE MAGGOT (*H. brassicae*) were heavy in PENNSYLVANIA. Injury was extensive on many vegetables. Seed-corn maggots infested cabbage heads in a 30-acre field in Schuylkill County. The field was not harvested. *H. brassicae* in NEW JERSEY ranged light to moderate and very much lower than the record maggot year of 1968. Injury was light. In CONNECTICUT, *H. brassicae* was very serious in fields and greenhouse flats.

CUCURBITS

Highlights:

CABBAGE LOOPER was the most difficult insect to control on cucurbits in Arizona, and was damaging in Virginia. STRIPED CUCUMBER BEETLE was troublesome early in the season in Colorado and Maryland. SEED-CORN MAGGOT destroyed several cucumber plantings in New Jersey.

CABBAGE LOOPER (*Trichoplusia ni*) infested cantaloups in April and May at Yuma, Yuma County, ARIZONA. Controls were required. This was probably the most difficult insect to control in 1969. Cabbage looper larvae were moderate on watermelons for the second consecutive year in central FLORIDA. Cabbage looper populations in Northampton and Accomack Counties, VIRGINIA, were much higher than usual in July and August. Cucurbits were severely damaged. In August virus diseases reduced populations.

BEET ARMYWORM (*Spodoptera exigua*) and WESTERN YELLOW-STRIPED ARMYWORM (*Prodenia praefica*) were major pests of watermelons in CALIFORNIA. Larvae of a LEAF ROLLER MOTH (*Platynota stultana*) caused severe damage to melons locally in Stanislaus County, CALIFORNIA.

SQUASH VINE BORER (*Melittia cucurbitae*) was troublesome in home vegetable gardens in NEW JERSEY during 1969. This pest was not a problem to commercial growers in the State. Squash vine borer was a pest of cucumbers and cantaloups in central and south ALABAMA.

STRIPED CUCUMBER BEETLE (*Acalymma vittatum*) caused damage in the Arkansas Valley of COLORADO in late June. Counts ranged 0-6 per cantaloup with considerable damage in some fields. Infestations were under control by mid-July and losses were moderate. This pest was found on cucumbers in OKLAHOMA mostly during July. Striped cucumber beetle was the most serious pest of commercial and home-grown cucumbers throughout ALABAMA. In MARYLAND early controls were required when seedlings emerged. After the seedlings became established, damage subsided and remained light throughout the season. Controls for striped cucumber beetle were applied to several hundred acres on the lower Eastern Shore to protect seedlings.

SPOTTED CUCUMBER BEETLE (*Diabrotica undecimpunctata howardi*) caused isolated damage to cucurbits but was not a major pest in ALABAMA. This pest caused damage to squash, cucumbers, cantaloup, and honeydew melons from mid-June to mid-September in OKLAHOMA. This leaf beetle was light in NEW JERSEY during the 1969 season. Feeding injury and wilt incidence were insignificant.

SEED-CORN MAGGOT (*Hylemya platura*) was abundant in southern NEW JERSEY counties during May. Several cucumber plantings were destroyed in Cumberland County, making replanting necessary. Possible resistance to a chlorinated hydrocarbon was indicated.

SQUASH BUG (*Anasa tristis*) was more prevalent in CALIFORNIA than in several years. Damage was scattered and heavy to squash. Squash bug populations were normal in UTAH, except in Iron, Davis, Washington, Salt Lake, and Morgan Counties. Squash bug was noted during June, July, and August in many areas of OKLAHOMA. The heaviest infestations occurred from mid-July to mid-August.

A LEAFHOPPER (*Empoasca filamenta*) averaged 10 per sweep in some watermelon fields east of Hermiston, Umatilla County, OREGON. However, harvestable watermelon tonnage did appear to be higher than normal.

MELON APHID (*Aphis gossypii*) was light to moderate in MARYLAND on melons and cantaloup. Infestations were spotty throughout Dorchester, Caroline, Wicomico, and Worcester Counties. Melon aphid was numerous on cantaloup foliage in central and southern UTAH.

SPIDER MITES (*Tetranychus* spp.) started to increase on watermelon, cantaloup, and and cucumber in Wicomico, Worcester, and Somerset Counties, MARYLAND, but were quickly depressed by the unseasonably wet weather during July and August. Damage was not economic. TWO-SPOTTED SPIDER MITE (*Tetranychus urticae*) was light to moderate on vine crops in NEW JERSEY.

GENERAL VEGETABLES

Highlights:

CABBAGE LOOPER was troublesome on lettuce in several western States, and controls were required in all areas. ALFALFA LOOPER was damaging to carrots in Washington. BEET ARMYWORM caused damage to lettuce in Arizona and to celery in Florida.

CABBAGE LOOPER (*Trichoplusia ni*) was very prevalent on many vegetables in CALIFORNIA and required repeated treatments. The last instars of cabbage looper were the main problem in major lettuce areas of ARIZONA. Controls were difficult on larger heads of lettuce due to the protection offered by the outer leaves. Larvae were heavy in an okra field in mid-June in Yuma County. This was probably the most difficult insect to control in 1969. Cabbage looper was a major pest of lettuce in NEW MEXICO, and required treatments throughout the growing season. Larvae ranged moderate to heavy in eastern COLORADO. Damage was moderate where adequate controls were used. Losses ranged from moderate to heavy on lettuce.

ALFALFA LOOPER (*Autographa californica*) larvae heavily damaged carrots after moving from herbicide sprayed weeds in Whatcom County, WASHINGTON. Spinach was also damaged in Walla Walla County. BEET ARMYWORM (*Spodoptera exigua*) larvae infested lettuce in October in Yuma County, ARIZONA. Controls were required. Beet armyworm caused heavy damage to some celery plantings from October to December, and GRANULATE CUTWORM (*Feltia subterranea*) was the cause of fairly heavy damage throughout the winter and spring on a wide variety of vegetables at Belle Glade, Palm Beach County, FLORIDA. VARIEGATED CUTWORM (*Peridroma saucia*) and SPOTTED CUTWORM (*Amathes c-nigrum*) counts were below the previous 2-year averages in the field and blacklight trap catches in MICHIGAN.

ARTICHOKE PLUME MOTH (*Platyptilia carduidactyla*) was severe on artichokes all season in CALIFORNIA.

ASPARAGUS BEETLE (*Crioceris asparagi*) and SPOTTED ASPARAGUS BEETLE (*C. duodecimpunctata*) ranged light to moderate during May in NEW JERSEY. Some controls were required in fields next to wooded areas to prevent egg laying on asparagus spears. Asparagus beetle adults in DELAWARE were common on asparagus spears from mid to late April. Asparagus beetle populations in northeastern and eastern ILLINOIS were unusually high. Egg laying on newly emerging asparagus was common early in the harvest season. Adults and eggs were reduced by chemical treatments. Spotted asparagus beetle and asparagus beetle populations were normal in UTAH.

ASIATIC GARDEN BEETLE (*Maladera castanea*) was unusually heavy in Wicomico and Worcester Counties, MARYLAND, during the first half of July. Adults ranged 6-15 per row foot in 80 acres of sweetpotatoes near Snow Hill, Worcester County, and controls were required. GOLDEN TORTOISE BEETLE (*Metriona bicolor*) was economic in 40 acres of sweetpotatoes near Salisbury, Wicomico County, MARYLAND. Damage was light in other fields in the county and required no controls.

TARNISHED PLANT BUG (*Lygus lineolaris*) was light and caused no particular problem on celery in NEW JERSEY. This pest caused light but significant injury to an experimental planting of fall lettuce near Seabrook in September. The injury assumed the appearance of small brownish spots on leaves within the heads.

ASPARAGUS MINER (*Melanagromyza simplex*) was more noticeable and widespread in MICHIGAN this year. Damage was limited to the fern growth. The area most affected was Oceana County, especially first-year field-seeded asparagus stands.

ONION MAGGOT (*Hylemya antiqua*) damage to onions was scattered in COLORADO, with up to 15 percent being reported from Pueblo County. This pest caused normal damage to onions in UTAH. Onion maggot populations were moderate in NEW JERSEY but of little concern in commercial fields. Following the serious infestations of 1968, widespread use was made of in-furrow insecticides.

GREEN PEACH APHID (*Myzus persicae*) started to build up on all vegetable crops in NEW JERSEY during late spring and early summer. Midsummer rains and a fungus disease kept this pest in check the rest of the season. Generally, populations and damage were much lighter than in previous years. Incidence of mosaic type viruses transmitted by this species was generally much lighter than in past years.

BROWN WHEAT MITE (Petrobia latens) infested garlic in Lyon County, NEVADA, in early May. Controls were required. This spider mite caused light damage to some green onions in Washington County, UTAH, in spring. TWO-SPOTTED SPIDER MITE (Tetranychus urticae) was heavy on carrots in NEW JERSEY and leaf damage was moderate.

An ACARID MITE (Tyrophagus dimidiatus) caused severe damage to spinach in Monterey County, CALIFORNIA.

ONION THRIPS (Thrips tabaci) ranged 0-100 per onion plant with damage light to moderate in COLORADO. This pest was normal to moderate on onions in UTAH. Unspecified THRIPS were moderate on asparagus throughout south NEW JERSEY during spring. Damage was not enough to reduce the quality at food processing plants.

GRAY GARDEN SLUG (Deroceras reticulatum) populations were very low in spring 1969 and lower than usual in fall in the Willamette Valley of OREGON. This is in contrast to the heavy populations present in fall 1968.

Weather of the week continued from page 154.
after several weeks of subnormal temperatures. A large area from the central Great Plains to the middle Appalachians averaged 6° to 12° warmer than normal. Some eastern areas averaged 8° to 15° warmer than the previous week. In general this was the warmest week in several months at most locations in the eastern half of the Nation. Early in the week, a quasi-stationary front stretched from the central Great Plains to the middle Atlantic coast. Cold air pushed southward north of the front and subfreezing minimums were common over the northern tier of States. South of the front, warm moist air pushed northward. Minimums were generally in the 40's and 50's; maximums ranged from the 50's from Kansas to Virginia to the 70's along the gulf coast. About midweek, subzero weather pushed into Montana and northern North Dakota. Havre, Montana, registered 20° below on Saturday, another blast of arctic air invaded the northern Great Plains. Roseau, Minnesota, registered 21° below zero on Saturday morning. A quick warmup pushed temperatures in the central Great Plains into the 70's on Sunday when Kirksville, Missouri, registered 73°. (Summary supplied by Environmental Data Service, ESSA.)

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